Application No. 10/069,912
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AMENDMENT TO THE CLAIMS

CLAIM 1. (Currently Amended) A fuel reformer vessel for reforming a hydrocarbon base fuel and water into a hydrogen rich gas with a reformer catalyst filled portion, wherein a Cr oxide layer is formed on at least a part of a surface of a steel material ~~making the reformer~~, said surface of the steel material being under an oxidative atmosphere by water vapor.

CLAIM 2. (Currently Amended) The fuel reformer vessel of claim 1, wherein said Cr oxide layer is formed on a surface of a fuel combustion gas passage side thereof.

CLAIM 3. (Currently Amended) The fuel reformer vessel of claim 1, wherein said Cr oxide layer is formed on a surface of a mixture gas passage from a fuel supply portion for supplying the reformer with mixture gas of raw fuel and water for reforming ~~and water vapor~~ to ~~a~~the reforming catalyst filled portion thereof.

CLAIM 4. (Currently Amended) The fuel reformer vessel of claim 1, wherein said Cr oxide layer is formed on a surface of a fuel combustion gas passage side thereof and also on the surface of the mixture gas passage from a fuel supply portion for supplying the reformer with mixture gas of raw fuel and water vapor for reforming ~~and water vapor~~ to the reforming catalyst filled portion thereof.

CLAIM 5. (Currently Amended) The fuel reformer vessel of claim 1, wherein an average thickness of said Cr oxide layer is 5 to

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

100 μm.

CLAIM 6. (Currently Amended) The fuel reformer vessel of claim 1, wherein said Cr oxide layer is formed on said surface of the steel material by heat treating the reformer vessel under an oxidizing atmosphere thereby to convert Cr to Cr oxide after forming thereon a thin film ~~having a~~containing Cr in a higher concentration ~~higher~~ than that ~~a Cr concentration~~ of a base material thereof ~~is formed on a surface of steel material making the reformer, and thereafter a Cr oxide layer formed by heat treatment is formed thereon~~.

CLAIM 7. (Currently Amended) A manufacturing method of a fuel reformer vessel for reforming a hydrocarbon base fuel and water into a hydrogen rich gas with reformer catalysts filled, said method comprising the steps of~~,~~:

forming a Cr oxide layer on at least a part of a surface of raw steel material by heat treating ~~through a heat treatment of~~ said raw steel material ~~in~~under an oxidizing atmosphere of 600 to 1000 ., said surface of the steel material being under an oxidative atmosphere by water vapor; ~~and~~

manufacturing a vessel for the fuel~~the~~ reformer by using said raw steel material on which the ~~where said~~ Cr oxide layer is thus formed; and ~~thereon~~

filling thus manufactured vessel with a reforming catalyst thereby to produce the fuel reformer vessel.

CLAIM 8. (Currently Amended) A manufacturing method of a fuel reformer vessel for reforming a hydrocarbon base fuel and water

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FAX. (617) 451-0313

into a hydrogen rich gas with reformer catalysts filled, said method comprising the steps of: ~~a step of~~

manufacturing a vessel for the fuel reformer by using raw steel material;

forming a Cr oxide layer on at least a part of a surface of the raw steel material~~, through a~~ by heat treating ~~treatment of the fuel reformer made of said raw steel material~~ in an oxidizing atmosphere of 600 to 1000 ., said surface of the steel material being under an oxidative atmosphere by water vapor; and

filling said vessel with a reforming catalyst thereby to produce the fuel reformer.

CLAIM 9. (Currently Amended) A manufacturing method of a fuel reformer vessel for reforming a hydrocarbon base fuel and water into a hydrogen rich gas with reformer catalysts filled, said method comprising the steps of~~;~~ :

forming ~~a thin film having a Cr concentration higher than a Cr concentration of a base material on a surface of raw steel material, and thereafter forming~~ a Cr oxide layer on at least a part of a ~~the~~ surface of a ~~said raw~~ steel material for making a fuel reformer vessel by ~~through a~~ heat treatment ~~in an oxidizing atmosphere~~ of 350 to 650 . under an oxidizing atmosphere to convert Cr to Cr oxide after forming thereon a thin film containing Cr in a higher concentration than that of a base material thereof, said surface of the steel material in the fuel reformer vessel being under an oxidative atmosphere by water vapor;

~~, and~~ manufacturing the vessel for the fuel reformer using said raw steel material ~~where~~ on which said Cr oxide layer is

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GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
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thus formed thereon; and

filling thus manufactured vessel with a reforming catalyst thereby to produce the fuel reformer vessel.

CLAIM 10. (Currently Amended) A manufacturing method of a fuel reformer vessel for forming a hydrocarbon base fuel and water into a hydrogen rich gas with reformer catalysts filled, said method comprising the steps of~~,~~:

forming a thin film ~~having~~containing ~~a~~ Cr in a higher concentration ~~higher than a Cr concentration of~~ than that of a base material thereof on at least a part of a surface of raw steel material, said surface of the steel material being under an oxidative atmosphere by water vapor;~~, and~~

thereafter forming a Cr oxide layer on the surface of said raw steel material~~, through a~~by heat ~~treatment~~treating ~~of the fuel reformer made of~~ said raw steel material under ~~in~~ an oxidizing atmosphere of 350 to 650 to convert Cr to Cr oxide;

manufacturing the fuel reformer vessel by using said raw steel material on which said Cr oxide layer is thus formed; and

filling thus manufactured vessel with a reforming catalyst thereby to produce the fuel reformer.

CLAIMS 11. - 17. (Cancelled)

CLAIM 18. (New) The manufacturing method of a fuel reformer of any one of claims 7 to 10, wherein an average thickness of said Cr oxide layer is 5 to 100 μm.

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313